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Bednarek et al.(10) **Pub. No.: US 2020/0360832 A1**(43) **Pub. Date: Nov. 19, 2020**(54) **PRESSURIZED VAPOR CYCLE LIQUID
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Bedford, NH (US)(21) Appl. No.: **16/715,670**(22) Filed: **Dec. 16, 2019****Related U.S. Application Data**

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(57)

ABSTRACT

Embodiments of the invention are directed toward a novel pressurized vapor cycle for distilling liquids. In some embodiments of the invention, a liquid purification system is revealed, including the elements of an input for receiving untreated liquid, a vaporizer coupled to the input for transforming the liquid to vapor, a head chamber for collecting the vapor, a vapor pump with an internal drive shaft and an eccentric rotor with a rotatable housing for compressing vapor, and a condenser in communication with the vapor pump for transforming the compressed vapor into a distilled product. Other embodiments of the invention are directed toward heat management, and other process enhancements for making the system especially efficient.

